

**WHAT IS CLAIMED IS:**

- 1           1. An air-permeable composite fabric comprising:  
2           a first fabric layer;  
3           a second fabric layer; and  
4           an intermediate, air-permeable vapor barrier disposed between and bonded to said  
5           first fabric layer and said second fabric layer;  
6           said intermediate, air-permeable barrier layer being selected from the group  
7           consisting of: a foamed adhesive in the form of a discontinuous film, an adhesive in the form  
8           of a continuous film mechanically altered by one of crushing and stretching, and a membrane  
9           disposed between and adhered to said first fabric layer and said second fabric layer with an  
10          adhesive and mechanically altered by stretching,  
11          said intermediate, air-permeable vapor barrier layer having a level of air permeability  
12          to allow air flow between said first fabric layer and said second fabric layer, and  
13          said intermediate, air-permeable vapor barrier layer having a variable level of water  
14          vapor diffusion resistance that substantially decreases as air speed of moving air impinging  
15          on said composite fabric increases.
  
- 1           2. The air-permeable composite fabric of claim 1, wherein said adhesive is selected  
2           from the group consisting of polyurethane, acrylics, polyamides, polyesters and combinations  
3           thereof.
  
- 1           3. The air-permeable composite fabric of claim 1, wherein at least one of said first  
2           fabric layer and said second fabric is rendered hydrophilic.
  
- 1           4. The air-permeable composite fabric of claim 1, wherein at least one of said first  
2           fabric layer and said second fabric layer has a raised surface.
  
- 1           5. The air-permeable composite fabric of claim 1, wherein said intermediate, air-  
2           permeable vapor barrier comprises an adhesive selected from the group consisting of: an  
3           adhesive in the form of a mechanically altered continuous film and a foamed adhesive in the  
4           form of a discontinuous film.

1           6. The air-permeable composite fabric of claim 5, wherein said vapor barrier is  
2 exclusively foamed adhesive in the form of a discontinuous film.

1           7. The air-permeable composite fabric of claim 1, wherein said intermediate, air-  
2 permeable vapor barrier comprises the membrane disposed between said first fabric layer and  
3 said second fabric layer and adhered thereto with an adhesive and mechanically altered by  
4 stretching, said composite fabric having undergone mechanical processing.

1           8. The air-permeable composite fabric of claim 1 or claim 7, wherein said membrane  
2 is made from a material selected from the group consisting of polyurethane, polyamide,  
3 polytetrafluoroethylene, polyester and combinations thereof.

1           9. The air-permeable composite fabric of claim 7 wherein said mechanical processing  
2 comprises controlled stretching.

1           10. The air-permeable composite fabric of claim 1, claim 5 or claim 7, wherein said  
2 adhesive is selected from the group consisting of polyurethane, acrylics, polyamides,  
3 polyesters and combinations thereof.

1           11. A method of forming an air-permeable composite fabric comprising the steps of:  
2 selecting a vapor barrier from the group consisting of a membrane and an adhesive,  
3 disposing the vapor barrier between a first fabric layer and a second fabric layer in  
4 order to produce the composite fabric, and  
5 mechanically processing the composite fabric of such that the intermediate, air-  
6 permeable vapor barrier layer has a level of air permeability to allow air flow between the  
7 first fabric layer and the second fabric layer and the intermediate, air-permeable vapor barrier  
8 layer has a variable level of water vapor diffusion resistance that decreases as air speed  
9 impinging on the composite fabric increases.

1           12. The method of claim 11, wherein said vapor barrier is a membrane, and wherein  
2 the step of mechanical processing comprises controlled stretching of the composite fabric.

1           13. The method of claim 11, wherein said vapor barrier is an adhesive, and the step of  
2 mechanical processing comprises applying pressure to the composite fabric.

1           14. The method of claim 13, comprising passing the composite fabric through a  
2 plurality of rollers while applying pressure.

1           15. The method of claim 13, comprising passing the composite fabric through a  
2 plurality of heated rollers while applying pressure.

1           16. The method of claim 14 or claim 15, comprising passing the composite fabric  
2 through the rollers at variable controlled speeds.

1           17. The method of claim 13, wherein the adhesive is foamed.

1           18. The method of claim 13, comprising disposing the adhesive between the first  
2 fabric layer and the second fabric layer by transfer coating using release paper.

1           19. The method of claim 11, comprising disposing the vapor barrier between the first  
2 fabric layer and the second fabric layer as a continuous film of adhesive.

1           20. The method of claim 11, comprising disposing the vapor barrier between the first  
2 fabric layer and the second fabric layer as a discontinuous film of adhesive.

1           21. The method of claim 11, comprising disposing the vapor barrier between the first  
2 fabric layer and the second fabric layer as a film of adhesive using release paper.

- 1           22. The method of claim 11, comprising disposing the vapor barrier between the first
- 2 fabric layer and the second fabric layer by applying the adhesive directly to at least one of the
- 3 first fabric layer and the second fabric layer.